

NEW SPECIES OF ANDRENID BEES FROM CALIFORNIA

(Hymenoptera)

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The following descriptions, with one exception, are offered at this time in order that the names may be available for use by Messrs. G. E. Bohart and J. W. MacSwain in their studies of the habits of California Aculeata.

***Andrena nigroclypeata* Linsley, new species**

Female. Robust; black; pubescence dark brownish, that of dorsum of thorax and propodeum bright fulvous. Head dull; antennæ black, obscurely brownish beneath, first segment of flagellum nearly as long as the following three segments together; face rather densely clothed with erect brownish and black hairs; foveæ broadened above and occupying at least three-fourths of space between lateral ocellus and eye, moderately broadly rounded below and extending below level of base of clypeus; clypeus dull, moderately finely, closely punctured, without a smooth median impunctate line; process of labrum broad, polished, feebly transversely rugulose, about four times as broad as long, apex about one-half as wide as base, rotundate-truncate; cheeks rather broad, subangularly rounded, densely clothed with long black or brownish hairs; malar space small. Mesoscutum dull, tessellate, moderately finely punctured, densely clothed with long, erect, bright fulvous hairs which are a little thinner on disk; tegulæ reddish, finely punctate; mesoscutellum tessellate, punctation similar to that of mesoscutum, pubescence long, erect, fulvous, dense at sides, disk subglabrous or thinly pubescent; metanotum opaque, densely clothed with erect, fulvous hairs; propodeum dull, thinly clothed with long, fulvous hairs, triangular area poorly defined, not bounded by a carina, not rugulose or carinulate; mesepisterna opaque, thinly clothed with long, erect, dark brown hairs; wings lightly infuscated, veins dark brown; legs black, clothed with dark brownish and black hairs, tibial scopa dark brown, dense, moderately compact, flocculus of posterior trochanters moderately long, curved, nearly perfect. Abdomen black, tergites one to four shining, tessellate, obscurely punctured, thinly clothed with erect, black or dark brown hairs, apex with a distinct, impressed, shiny margin; fifth tergite opaque, distinctly but not closely punctured, apical fimbria dark brown; sternites shining, sparsely punctured and subglabrous at base, distinctly punctured apically and thinly clothed with erect black hairs, apical margin fringed with a row of very long, erect black hairs. Length: 12-13 mm.

Male. Slender; black, shining; pubescence thin, black, that of thorax mostly fulvous. Head much wider than thorax; pubescence of face long, erect, black, that of occiput and ventral surface fulvous; antennæ black, first segment of flagellum less than one and one-half times as long as second; frons dull, with a polished band along eye margin; clypeus large, black, polished, finely punctured, punctures one to several widths apart, pubescence sparse, erect, black, mostly basal; process of labrum smooth, polished, about twice as wide as long, apex at least one-half as wide as base, distinctly but shallowly notched; mandibles long, slender, lying one above the other in repose; cheeks nearly right-angular; malar space short. Thorax thinly clothed with long, erect, fulvous hairs, longest on metanotum; mesoscutum, scutellum, metanotum, and propodeum dull, tessellate, punctation obscure; propodeum with triangular area poorly defined, not bounded by a carina, neither rugulose nor carinulate; wings lightly infuscated, veins brownish; legs slender, thinly clothed with long, fulvous hairs, anterior trochanters without a finger-like process. Abdomen black, shining, tergites very finely, sparsely, obscurely punctured, sparsely clothed with short, suberect, black hairs; sternites sparsely clothed with short, suberect, black hairs, posterior margins with a fringe of longer, erect, fulvous hairs. Length: 10 mm.

Male minor. Clypeus smaller, dullish, finely and very densely punctured, pubescence very dense, uniform. Length: 9 mm.

Holotype male (No. 4847, Calif. Acad. Sci., Ent.), allotype female (No. 4848), and eleven paratypes, six male and five female, from Murietta Caves, Alameda County, California, April 2, 1939, collected by G. E. Bohart and J. W. MacSwain. The females were collecting pollen from *Platystemon californicus*. Four paratypes will be retained in the collection of the writer, the remainder returned to Messrs. Bohart and MacSwain.

This fine species is related to *Andrena macrocephala* Cockerell and *A. berberidis* Cockerell but the male is easily distinguished from both by the black clypeus and shorter first flagellar segment which is at most only one and one-third times as long as the second. The female differs from *macrocephala* in its slightly larger size, darker wings and wing veins, and the shape of the process of the labrum which is short and broad with the apex rotundate-truncate rather than subtriangular with the apex feebly tuberculate. From *berberidis* the female may be separated by the fulvous notal pubescence, the broader facial foveæ, more finely punctured clypeus, and the smooth triangular area of the propodeum (in *berberidis* there are a few basal rugæ). In the struc-

ture of the head and antennæ, these three species agree rather well with the group of *A. porterae* Cockerell (subgenus *Dactyl-andrena* Viereck), differing slightly in the longer facial foveæ and smaller malar space. However, in the type species of *Dactyl-andrena*, *A. maura* Viereck (= *A. caliginosa* Viereck), the malar space is large in the male and small in the female. The subgenus *Conandrena* Viereck was distinguished by the elongate face in the female and the absence of a finger-like process on the anterior trochanter of the male. In view of the variation in these characters between the three obviously closely related species, *porterae* Cockerell, *caliginosa* Viereck, and *submaura* Linsley, it is doubtful if *Conandrena* can be recognized on this basis.

Andrena rhodotricha Linsley, new species

Female. Moderately robust; brown; pubescence reddish. Head dull; vertex subglabrous; frons densely clothed with long, erect, reddish hairs, occasionally with an intermixture of dark hairs above antennal bases and along sides of face; antennæ dark brown, first segment of flagellum nearly as long as following three segments together; foveæ moderately wide, broadly rounded above and occupying at least two-thirds of distance between lateral ocelli and eye, moderately narrowly rounded below and extending slightly below level of base of clypeus; clypeus dullish, moderately coarsely, closely punctured, without a well defined, median, longitudinal, impunctate line; process of labrum small, subtriangular, apex feebly tuberculate; cheeks broad, subangularly rounded, densely clothed with long, erect, reddish hairs; malar space small but distinct. Mesoscutum dull, tessellate, moderately finely, obscurely, not closely punctate, moderately densely clothed with long, fine, erect, reddish hairs which do not obscure the surface; mesoscutellum and metanotum similarly sculptured and pubescent; propodeum sparsely hairy at base, otherwise moderately densely clothed with long, erect, reddish hairs which do not obscure the surface, punctation moderately fine, sparse, obscure, triangular area impunctate, finely tessellate, mid-line rough, base with a few short rugæ; mesepisterna dull, tessellate, moderately finely, obscurely, not closely punctured, moderately densely clothed with long, erect hairs which do not obscure the surface; wings lightly infuscated, veins dark brown; legs dark brown, clothed with reddish hairs, tibial scopa short, moderately dense, hairs of dorsal margin denser, less than one-half as long as greatest width of tibia, hairs of lower margin long, recurved; flocculus of posterior trochanters long, curved, nearly perfect. Abdomen brown, dullish, tessellate, tergites one to four moderately finely, sparsely, obscurely punctured except for a narrow, paler, impressed, apical

margin, surface moderately densely clothed with long, erect, reddish hairs which do not obscure the surface; apical fimbria composed of hairs of the same color as the remaining abdominal pubescence; sternites thinly clothed with erect, reddish hairs, those of fringe along apical margin very long. Length: 11-11.5 mm.

Male. Slender; very dark brown; pubescence thin, fulvochreous. Head wider than thorax; pubescence long, erect, fulvochreous with a few dark hairs at sides of face and vertex, very dense on frons and clypeus, sparse on vertex; antennæ very dark brown, first segment of flagellum about one and one-half times as long as second, second segment shorter than third; clypeus moderately finely, densely punctured except for an ill-defined median smooth line, surface nearly obscured by the dense pubescence; process of labrum short and very broad, apex obtusely rounded; mandibles moderately long, slender, apices distinctly crossing over in repose, base with a small median tubercle, posterior margin without a basal tooth; cheeks broad, nearly right-angular, densely clothed with long, erect hairs; malar space short but distinct. Thorax thinly clothed with long, erect, fulvochreous hairs, surface tessellate, obscurely punctate; propodeum with triangular area poorly defined, not bounded by a carina, without rugæ; wings lightly infuscated, veins dark brown; legs slender, thinly clothed with long, erect, fulvochreous hairs. Abdomen dark brown, tergites tessellate, shining, finely, sparsely, obscurely punctured, sparsely clothed with erect, fulvochreous hairs, longer and denser on first tergite; sternites sparsely clothed with erect, fulvochreous hairs, posterior margin with a fringe of longer hairs. Length: 11 mm.

Holotype female (No. 4816, Calif. Acad. Sci., Ent.) and allotype male (No. 4817), from Berkeley, California, March 14, 1939, G. E. Bohart and J. W. MacSwain collectors. One paratype female, Berkeley, California, March 11, 1939 (Bohart and MacSwain) is in the collection of the writer.

Andrena rhodotricha is closely related to *A. albihirta* (Ashmead) and may prove to be merely subspecifically distinct. It differs from Colorado specimens of the latter species (including a specimen in the Timberlake collection determined by Viereck) in the reddish rather than dirty white pubescence, less coarsely punctured clypeus, and brownish veins and stigma. The male of *albihirta* was not available for comparison, but from the related *A. perarmata* Cockerell, *rhodotricha* may be separated by the brown integument, fulvochreous pubescence, and absence of the basal tooth from the mandibles.

Andrena boharti Linsley, new species

Female. Medium sized, moderately robust; dark brown; pubescence fulvous. Head dull; antennæ dark brown, first segment of flagellum about as long as following two segments together; facial pubescence moderately long, fulvous, not dense; vertex opaque, subglabrous, minutely striate; foveæ moderate, broadly rounded above and occupying a little more than one-half of the distance between lateral ocelli and eye, more narrowly rounded below and extending below level of antennal bases but not quite to level of base of clypeus, lower half paler, in some lights appearing ochreous, upper half brownish; clypeus shining, rather coarsely, closely punctured on disk, finer laterally, median smooth line poorly defined; process of labrum suboblong, nearly twice as wide as long, apex about four-fifths as wide as base, feebly emarginate or subtruncate; cheeks broadly rounded, densely clothed with long, fulvous hairs; malar space obsolete. Mesoscutum feebly shining, tessellate, disk evidently but moderately finely punctured, punctures mostly less than two puncture widths apart, pubescence erect, moderately dense, fulvous, shorter than that of pleura, not obscuring surface; mesoscutellum shining, a little less closely punctured than mesoscutum, sparsely pubescent anteriorly; metanotum densely clothed with long, erect, fulvous hairs; propodeum opaque, tessellate, obscurely punctured, thinly clothed with long, erect, fulvous hairs, triangular area poorly defined, base with a few short rugæ; mesepisterna dull, tessellate, obscurely punctured, thinly clothed with long hairs; wings subhyaline, not darker apically, veins and stigma pale brown; legs moderately slender, clothed with fulvochreous hairs, tibial scopa moderately short, not dense, hairs of dorsal margin nearly erect, not as wide as tibiæ, those of ventral margin longer, recurved at apex, minutely plumose; flocculus of posterior trochanters moderately long, thin, curved, nearly perfect. Abdomen shining, tessellate, finely, obscurely punctured, punctures averaging several puncture widths apart, tergites one to four finely, sparsely pubescent, with thin pubescent fasciæ at apices of tergites two to four, broadly interrupted on tergite two, less broadly on three, narrowly on four; apical fimbria golden brown; sternites more closely and distinctly punctured than tergites. Length: 9 mm., anterior wing, 7 mm.

Male. Slender; dark brown, shining; pubescence of dorsal surface fulvochreous, that of ventral surface perceptably paler. Head wider than thorax; pubescence of face long, erect, fulvochreous, intermixed with darker hairs near eye margins; antennæ dark brown, first segment of flagellum subequal in length to second segment, intermediate flagellar segments longer than broad; vertex and upper frons dull; clypeus shining, coarsely, closely punctured at middle, more finely toward sides, punctures less than one puncture width apart, pubescence long, pendant, dense but not

completely obscuring the surface; process of labrum about twice as wide as long, apex but little narrower than base, shallowly notched, lateral angles rounded; mandibles moderately long, slender, apices lying one above the other in repose; cheeks moderately narrow, rounded posteriorly; malar space obsolete. Thorax loosely clothed with long, erect, fulvochreous hairs, dorsal surface opaque, tessellate; propodeum with triangular area poorly defined, not rugulose or carinate; wings subhyaline, veins and stigma light brown; legs slender, thinly clothed with long, ochreous or fulvochreous hairs. Abdomen dark brown, shining; tergites one to four tessellate, obscurely, sparsely punctured, tergites two to four with a narrow pubescent fascia along posterior margin, broadly interrupted at middle on all three segments. Length: 9 mm., anterior wing, 7 mm.

Holotype female (No. 4814, Calif. Acad. Sci., Ent.), allotype male (No. 4815), and twenty-two paratypes collected at Berkeley, California, February 27, 1939, by G. E. Bohart and J. W. MacSwain. Most of the specimens were taken from their nests before emergence.

Superficially this species resembles a *Platandrena* but the form of the tibiae will exclude it from that group. The male suggests *A. (P.) angustitarsata* Viereck and *A. (P.) opaciventris* Cockerell, but may readily be distinguished by the coarsely punctured clypeus. The female differs from *A. scurra* Viereck, to which it seems to be related, in the short, broadly bilobed process of the labrum, bicolored facial foveæ, reddish pubescence, more finely sculptured area of the propodeum, etc. In comparison with the Coloradan *A. phocata* Cockerell, which has similarly bicolored foveæ and other characters in common, it may be distinguished by the more elongate first flagellar segment (longer than the following two segments together), bilobed process of the labrum, fuscous tinted wings, and color of pubescence and apical fimbria.

Andrena (Opandrena) sphæralceæ Linsley, new species

Female. Moderate sized, robust; black, abdomen red, legs reddish brown, posterior pair dominantly reddish or rufotestaceous; pubescence thin, white. Head black; antennæ dark brown, outer flagellar segments reddish beneath, first segment of flagellum nearly as long as following three together; vertex dull, frons obliquely striate on each side of median carina; foveæ broad, pale brownish, broadly rounded above and occupying most of distance between ocelli and eye, more narrowly rounded below and extend-

ing slightly below antennal bases; clypeus moderately shining, minutely tessellate, disk subglabrous, moderately coarsely, irregularly punctured, punctures smaller, closer laterally; process of labrum short, more than twice as wide as long, apex subtruncate; cheeks rather broad, rounded posteriorly, surface polished, finely, obscurely punctured, thinly clothed with long, white hairs; malar space obsolete. Mesoscutum tessellate, dull, disk slightly shiny; surface moderately finely, distinctly punctured, punctures mostly from one to three puncture widths apart, a little sparser posteriorly; pubescence thin, very sparse on disk; tegulae reddish brown, minutely, sparsely punctured; mesoscutellum shining, punctures similar to those of mesoscutum but less close; metanotum clothed with long, erect, white hairs; propodeum, including triangular area, dull, triangular area poorly defined, without rugae or carinae; wings lightly tinted with yellow, veins and stigma pale yellowish brown; legs thinly clothed with white hairs, posterior femora rufo-testaceous, apex rufo-piceous, posterior tibiae rufo-testaceous, base rufo-piceous, spurs pale, scopa thin, loose, hairs of dorsal margin about as wide as tibia, posterior metatarsi and tarsi mostly reddish brown, flocculus of posterior trochanters long, curved, white, thin. Abdomen red, shining; tergites finely but distinctly punctured, with a rather broad, nearly impunctate, depressed, apical margin; tergites two to four with a thin, white-pubescent fascia along apical margin, broadly interrupted at middle on tergites two and three, narrowly interrupted on four; apical fimbria whitish or golden depending on the light direction; sternites with apical fringes very long, depressed, white. Length: 8-9 mm.; anterior wing, 6-6.75 mm.

Male. Moderately robust; black, abdomen red basally; pubescence white. Head wider than thorax; facial quadrangle wider than long, clypeus yellow, without lateral face marks; pubescence of face long, white, sparse; frons and vertex opaque, finely tessellate, obscurely punctate; antennae dark brown, moderately robust, first segment of flagellum a little longer than the following two together, intermediate flagellar segments but little longer than broad; clypeus subglabrous, obscurely, sparsely punctured; process of labrum scarcely more than a narrow, transverse ridge; mandibles long, slender, apices crossing over in repose, a small notch on inner side before apex; cheeks broad, almost right-angular, polished, finely, obscurely, sparsely punctured, thinly clothed with long, white hairs; malar space obsolete. Thorax thinly clothed with long, white hairs; mesoscutum tessellate, feebly shining, moderately finely, distinctly punctured, punctures mostly about two puncture widths apart, sparser and more irregular on posterior disk; mesoscutellum shining, irregularly punctured, subglabrous; metanotum dull, clothed with long, erect, pale hairs; propodeum dull, tessellate, basal and discal areas subglabrous, triangular area scarcely defined, without carinae or rugae; wings tinted with yellow, veins and stigma pale yellowish brown; legs

slender, dark brown, shining, thinly clothed with white hair, apex of posterior tibiæ rufo-testaceous. Abdomen with first three segments reddish, remaining segments dark brownish; apical pubescent fasciæ of tergites two to four similar to those of female but less evident. Length: 9 mm.; anterior wing, 6.5 mm.

Holotype female, allotype male, and three female paratypes (Timberlake collection), from Salt Creek, California, March 20, 1927, on *Sphæralcea ambigua*, collected by Mr. P. H. Timberlake. Eight additional paratypes are from the Chocolate Mountains, Riverside County, California, April 4, 1937, also on *Sphæralcea ambigua* (Linsley collection). Since this species was first collected by Mr. Timberlake who recognized it as new, I have selected the type and allotype from his material, and I have also used the name suggested by him for this beautiful species.

A NEW ARIZONA PRIOCERA, WITH A KEY TO SPECIES

(Coleoptera, Cleridæ)

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The author would like to express his thanks to Mr. P. C. Ting for notes obtained in the eastern United States, to Mr. E. S. Ross for the loan of the allotype and to Dr. E. C. Van Dyke for the use of his extensive library.

Priocera catalinæ Cazier, new species

Small, narrow, elongate; head and pronotum dark-red, elytra with basal half rufous, apical half piceous, quadrately overlapping medially, outer half of elytra piceous slightly anterior to middle, inner half rufous slightly posterior to middle, extreme posterior end of inner rufous projection yellow, small spot immediately anterior to piceous projection faintly yellow. Male. Head with front rugosely punctate laterally around eyes, sparsely clothed with rather long erect hair, occiput nearly impunctate, canthus prominent, convex; clypeus impressed, impunctate; labrum with anterior margin hairy, deeply emarginate medially; eyes separated by their own widths in front, sparsely pilose; terminal segment of labial palpi longer than basal segments, trigonate, inner edge one-half length of outer edge, upper edge widened and deeply excavated for entire length, surface rather densely pilose; antennæ rufous, eleven segmented, extending slightly beyond humeral umbone of elytra,